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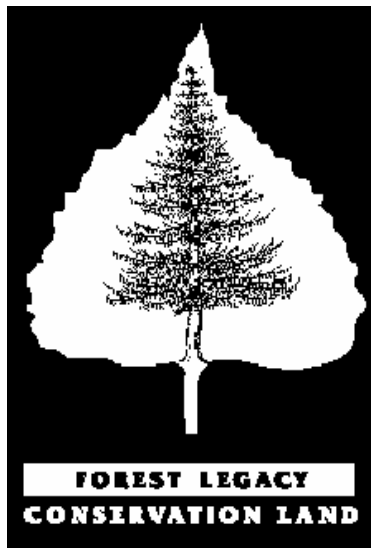


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STATE-WIDE FOREST LEGACY
ASSESSMENT OF NEED
FOR THE NEBRASKA FOREST LEGACY PROGRAM



www.nebraskaforestlegacy.org



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STATE-WIDE FOREST LEGACY
ASSESSMENT OF NEED
FOR THE NEBRASKA FOREST LEGACY PROGRAM

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Introduction

The Forest Legacy Program (FLP) authorizes the USDA Forest Service or state governments to purchase permanent conservation easements on private forest lands and to prevent those lands from being converted to a non-forest use. The forest lands that contain important scenic, cultural, recreation resources, fish and wildlife habitats, water resources, and other ecological values that will support continued traditional forest uses receive priority. Those land owners that choose to participate in the program are required to follow a stewardship plan designed for their forest. Activities consistent with the management plan, including timber harvesting, grazing, and recreation activities, are permitted.

For Nebraska to participate in the FLP, the Nebraska Forest Service (NFS) was identified by the Governor of Nebraska to produce a document assessing the need for such a program. This Assessment of Need (AON) document contains a background of Nebraska, an overview of the tasks performed, and descriptions of each Forest Legacy Area (FLA), as well as selection criteria of inclusion in the FLP.

The purpose of the Forest Legacy Program is to protect environmentally important private forest areas that are threatened by conversion to non-forest uses. Specifically, the FLP in Nebraska will emphasize:

- 1. Protection of flora/fauna species diversity.**
- 2. Protection of lakes, rivers, streams, and other significant riparian areas.**
- 3. Protection of significant wildlife habitat.**
- 4. Protection of forested parcels in danger of conversion to commercial and/or residential development or being cleared for agriculture.**
- 5. Protection of unique ecological areas.**
- 6. Protection and expansion of hunting and fishing based recreation opportunities.**
- 7. Protection of water resources.**

These seven criteria were developed through a survey conducted as part of this AON. The survey was used to assess and include Stakeholder's interest in the FLP and for identification of protection goals for the FLP.

Section 1 of this document presents information pertaining to the historical, cultural, physical, biological, and ecological elements of Nebraska, all of which influence land ownership and use patterns.

Section 2 presents the FLA assessment methodologies, including generation of the Primary Forest Conversion Map to identify areas in Nebraska that are in danger of conversion from

traditional forest uses, and gathering of information from landowners, natural resource agency personnel, and other stakeholders who may be involved in the FLP in the future as to what they felt were important criteria for the protection of privately owned forests.

Also contained in Section 2 is information gathered to aid the Legacy Program Manager and the State Forest Stewardship Coordinating Committee (SFSCC) in identifying geographic priorities and creating project selection criteria and ranking procedures.

Section 3 identifies the entire state of Nebraska where protection efforts provided under the Forest Legacy Program will be applied when Nebraska is accepted into the program. Additionally, four priority FLAs throughout the state are identified as areas of greater significance to the FLP and will receive special consideration in the selection and ranking process. For each of the four priority FLAs, this document (1) identifies area coverage description, (2) specifies Forest Legacy protection goals, and (3) describes topography, ecology, recreation, water, and other resources for each area.

Section 4 describes the project selection and ranking procedures used to endorse proposed FLP projects. Included in Section 4 are SFSCC selection and ranking criteria for inclusion in the FLP. Section 5 lists the numerous land conservation programs already in existence in Nebraska along with land trust organizations.

STATEMENT OF PURPOSE

When people think of Nebraska things like agriculture, the Oregon Trail, and Cornhusker Football come to mind, not necessarily forests. In reality, forests in Nebraska play a sometimes overlooked role within the State. Approximately only 2% of the land in Nebraska is classified as a forest and about 90% of that forested land is in private ownership.

Nebraska is known as the “Tree Planter State”. Numerous examples of this are seen throughout Nebraska’s history. The first Arbor Day was organized by J. Sterling Morton on April 10, 1872. The National Arbor Day Foundation located in Lincoln is still responsible for organizing tree planting activities throughout the United States and Internationally. In 1873, the U.S. government established the Timber Culture Act which offered free land to settlers who planted trees on their homestead.

Currently, forest resources in Nebraska represent a unique mix of central hardwood forests, northern boreal forests, and Rocky Mountain forests along with important short and tall grass prairie ecosystems. Forests in Nebraska play an ever increasing role of providing wind breaks, shelter and habitat for wildlife, and recreational opportunities for the residents of Nebraska.

With an increase of population of only 8% from 1990 to 2000, development pressures do not appear to be a direct threat to Nebraska's forests. However, when viewed spatially, many of the population increases are occurring in forested areas especially along the Platte and Missouri Rivers. There is also a great increase of second home and recreational home development occurring in the Pine Ridge that can lead to fragmentation of larger forested lands. Changing ownership of forested lands also does not always mean a continuation of active forest stewardship.

This Assessment of Need for a Forest Legacy Program in Nebraska evaluates the current condition and uses of forests in Nebraska. This was accomplished by research of available literature and data, along with a survey of stakeholders throughout Nebraska, questioning values and attitudes for protection of Nebraska's privately owned forests. The stakeholders' responses were used to develop protection goals for the Forest Legacy Program in Nebraska.

During evaluation, the SFSCC decided to include all forested parcels in Nebraska for consideration of the FLP but gave four Forest Legacy Areas- the Pine Ridge FLA, the Wildcat Hills FLA, the Niobrara River Valley FLA, and the Missouri River Bluffs FLA, special priority.

This document, produced for the State of Nebraska, is recommending the inclusion of the State of Nebraska, the priority FLA's defined in Section 3, along with the selection and ranking procedures outlined in Section 4 for inclusion in the National Forest Legacy Program.

SECTION 1: STATE OF NEBRASKA BACKGROUND INFORMATION

Cultural Heritage

Based on discoveries of stone tools and weapons, archeologists approximate the arrival of humans into the Nebraska area at 25,000 to 10,000 years ago. Before white settlers colonized the mid-West, Native Americans had inhabited the area for hundreds of years. The Missouri, Omaha, Oto, and Ponca tribes farmed and hunted along Nebraska rivers, and the Pawnee tribe farmed and hunted buffalo on the plains. Wandering tribes, such as the Arapaho and Cheyenne, lived in Western and Central Nebraska.

During the 1500's and 1600's, France and Spain argued over who had claim over the land, that included Nebraska, known as "Louisiana", in honor of French King Louis XIV. In 1803, France sold the Louisiana Territory to the United States in a transaction commonly known as the "Louisiana Purchase".

Meriwether Lewis and William Clark were some of the first Americans to visit Nebraska. From 1804 to 1806, their expedition traveled up the Missouri River and into the state's eastern edge. The name "Nebraska" was taken from the Oto word "Nebrathka" meaning "flat water". The word "Nebraska" first appears in publications of 1842, when the "Nebraska River" is mentioned as the Oto name for the Platte River. Nebraska gained statehood on March 1, 1867, and the capitol was moved from Omaha to Lancaster, the city now known as Lincoln.

Demographics

Demographic shifts throughout Nebraska have not been considerable during the last century. According to the U.S. Census Bureau, the population change from 1990-2000 was just over 13% for the country but only 8.4% for Nebraska. The total population of Nebraska in 2001 was approximately 1,713,235. This marked a 61% increase from the beginning of the 1900's. The projected state population for 2010 is 1,806,000. Nebraska is approximately 90% white, 5.5% Hispanic, 4% black, 1.3% Asian, and 0.9% Native American, with a median age of 35.3. Minorities mainly inhabit the metropolitan areas of Omaha and Lincoln, although the Hispanic population is increasing significantly in those cities where meat packing is a major industry.

Most of the population is concentrated in the eastern one-quarter of the state and along the Platte and North Platte Rivers. Over one-half of Nebraska's population lives in the eastern Counties of Lancaster and Douglas. Douglas County, which includes the City of Omaha, contained 1,258 people per square mile in the year 2000. The majority of Nebraska counties have densities of less than 10 people per square mile. Growth trends are continuing toward urban areas, and projected population changes in many counties of central and western Nebraska reveal steady

negative growth. In 1990, less than 34% of Nebraskans were rural dwellers.

Land Ownership and Use

Of the 49.5 million acres (77,359 square miles) that make up Nebraska, 469,100 acres is covered by open water. In 1997, federally owned land made up 647,700 acres, and 1,205,900 acres of the total acreage is in commercial or residential development. Approximately 97% of all land in Nebraska is privately owned

Farming comprises 94% of Nebraska's land use, and these activities differ among regions. Cattle grazing dominates the northwest and north central parts of the state. The southern Panhandle and the southwest contains mostly large-scale wheat production facilities. In the northeast and the Central Platte Valley, farmers grow corn and raise feeder cattle and hogs, while in the North Platte Valley, farmers specialize in sugar beets and dry beans. Corn is concentrated south of the Platte River, and sorghum is raised in the southern part of the state.

Geography and Soils

Nebraska consists of two major natural regions, the Central Lowlands and the Great Plains. The eastern fifth of the state sits in the Central Lowlands, and the rest is broken up into four distinct areas of the Great Plains: High Plains, Sand Hills, Loess Hills and canyons, and Loess Plains. The state slopes gently upward to the northeast with the elevation increasing by an average rate of two meters per kilometer. Nebraska's lowest elevation at 840 feet above sea level lies along the Missouri River in Richardson County, and the highest point at 5,426 feet is in the Panhandle in Kimball County.

The state has some of the most fertile and productive soils in the world. This richness results from a combination of climate and biological organisms on parent materials. Parent materials have been formed by two types of geologic deposits in the state. The Sand Hills, occupying much of the north-central part of the state, has soils with parent materials made from wind-blown sand. Elsewhere, the soils have formed in wind-blown silt and clay or loess (extremely fine loam deposited by the wind). Soil drainage and topography also contribute to the formation of soils in Nebraska.

Climate

Nebraska is characterized by hot summers and cold winters, fluctuating rainfall and growing season, and frequent heavy winds. Average precipitation between 1990 and 2000 ranged from 32 inches in the southeast to 18 inches in the west. The decade produced a state average of 26.8 inches of precipitation. Snowfall throughout the state ranges from 20 to 40 inches yearly. The decline in moisture from east to west is the result of a combination of factors: 1) Nebraska's

interior location; 2) the Rocky Mountains blocking moisture from the Pacific Ocean; and 3) increasing distance from the Gulf of Mexico. Variation in precipitation from north to south is insignificant.

Three-fourths of Nebraska's rainfall falls during April-September. As summer progresses, rainstorms shift farther north, causing more rainfall in the northern part of the state. The possibility of receiving significant amounts of precipitation varies widely from month to month for all Nebraska locations. The growing season in Nebraska ranges from 170 days in the southeast to the 120 days in the extreme northwest. Extensive irrigation provides protection against drought, a serious problem in the Great Plains. The Sand Hills region has historically been less vulnerable to the impacts of droughts than other parts of Nebraska. This is because native drought-resistant vegetation in the Sand Hills has been left largely intact, and a large groundwater reservoir provides water to numerous lakes and subirrigated meadows and serves as a source of irrigation to the region's livestock industry and wildlife.

The Nebraska landscape has a tendency toward cooler temperatures in the west, becoming most noticeable in the summer months. In addition, the length of the freeze-free season (the average number of days between the last spring freeze and the first fall freeze) ranges from about 150 days in the east to about 120 days in the northwest.

Torrential downpours, severe winds, and hail are common. Tornadoes occur yearly but in varying number and intensity. Hailstorms are very severe in western Nebraska, which probably has the highest hail frequency in the country. During dry years, dust storms occasionally develop in the Panhandle and in the southwestern part of Nebraska.

Rivers and Water Resources

All of Nebraska's rivers and streams drain into the Missouri River along the eastern border of the state. The Platte River is formed by the North and South Platte Rivers originating in the Rockies and flows in the eastern direction through Central Nebraska. The Sand Hills are drained by the Niobrara, Elkhorn, and Loup Rivers, and the Republican and Big Blue Rivers drain the southern part of the state. Approximately 8 million acre-feet of surface water flows annually from Nebraska into other states. No large natural bodies of water exist in Nebraska, although hundreds of small natural lakes are found throughout the state.

Nebraska possesses enormous groundwater reserves. The Ogallala Aquifer, located under much of the central part of the state, provides irrigation to a large part of Nebraska via deep wells. Nebraska aquifers store nearly 2 billion acre-feet of groundwater, most of which is easily accessible. Use of underground water is regulated through 23 natural resource districts throughout the state. Irrigated land in Nebraska amounted to 6.3 million acres in the early

1990's. Nebraska has more center pivot irrigation systems than any other state.

Many projects have been developed to minimize flooding, particularly in southeastern Nebraska. The largest project provides protection for Lancaster County, including the City of Lincoln. Upstream dams in Montana and the Dakotas have reduced flooding along the Missouri River. Five reservoirs control flooding on the Republican River in Nebraska.

Agriculture

Agriculture's importance in Nebraska reveals itself through 94% of the State's total land area. In 2000, Nebraska had approximately 54,000 farms and ranches utilizing 46.4 million acres. An estimation was made that one-half of Nebraskans are employed in agriculture or related industries, such as phases of the food and fiber production chain.

The current trend of farm number and size is that the number of farms is decreasing but the size of each farm is increasing. This trend can be seen all over the country, although Nebraska illustrates it well with its extensive agricultural industry. Nebraska had a peak number of farms in 1934 (135,000). This total is down 60%, although farmland did not decrease because farm size is increasing. In 1990, Nebraska had roughly 57,000 farms and ranches with an average farm at 826 acres. A decade later saw 3,000 less farms and an increase in the average size by 33 acres.

Nebraska's 46.4 million acres of farmland is divided into cropland, pastureland, and rangeland. In 2000, 19.2 million acres was planted to crops or used for hay. This planted acreage has steadily increased since 1996. Government acreage reduction programs have reduced planted acreages in some years.

Approximately 15.5 million acres of cropland is used to cultivate the State's leading crops - corn, soybeans, winter wheat, and sorghum. Speciality crops of sugar beets and dry beans are grown in western fields. North central Nebraska produces most of the State's wild hay and maintains many cow/calf operations. In a 2000 Nebraska Crop Summary produced by the Nebraska Agricultural Statistics Service (April, 2001), Nebraska was 1st in production of great northern beans, 2nd in alfalfa meal production, and 3rd in pinto beans, sorghum grain, and corn for grain production.

Nebraska also boasts high rankings in livestock and poultry enterprises. Two of every three farms in the State raise cattle, hogs, or pigs. In 2000, cash receipts from animal products accounted for approximately 60% of total cash receipts. Nebraska's national ranking among the States in 2000 was 1st in commercial red meat production (7.1 billion lbs), and 2nd in commercial cattle slaughter (7.6 million - 21% of U.S. total). In 2001, Nebraska was 2nd in cattle

on feed (2.55 million) and 3rd in cattle and calves (6.6 million). Nebraska had a record high in January of 2001 of 2.55 million head of cattle on feed.

Although Nebraska receives an average of 90 million acre-feet of annual precipitation, groundwater irrigation plays an important role in agriculture. Nearly 46,000 registered irrigation wells existed in the State at the beginning of 1975. In 2000, approximately 81,500 registered wells and 5,000 surface water rights irrigated about 8.1 million acres of crop and pastureland.

Recreation and Aesthetics

Tourism and recreation in Nebraska are largely related to the State's forest resources. Although Nebraska is known for its agriculture production, trees create a mosaic that is visually attractive and offer many opportunities for outdoor enthusiasts. Game wildlife, such as wood duck (*Aix sponsa*), white-tailed deer (*Odocoileus virginianus*), and wild turkeys (*Meleagris* spp.), are forest-dependent. Additionally, many of the lakes and rivers that provide fishing and boating opportunities depend on the forests for their water quality.

Nebraska's Highway 2 is considered one of the most scenic roads in the country. From Grand Island to the byway's western edge of Alliance, Highway 2 travels through remote and beautiful countryside. The City of Grand Island is an excellent spot for birdwatching. Each year, the central Platte River Valley becomes a major stopover point for migrating sandhill cranes. This gathering of cranes is the largest in the world.

From Omaha to South Sioux City, one can travel along Highway 75 through unspoiled land of lakes, rivers, and scenic terrain. The highway follows the riparian corridor of the Missouri River, which is a major source of commerce and recreation today. For centuries, the Missouri has determined the quality of this fertile land and the lives harnessing its resources. Rich history of the Sioux and Omaha cultures can be sought along Highway 75.

Highway 75 is also referred to as the Lewis and Clark Byway. This byway covers the area first explored by Lewis and Clark in 1804 as they tried to find a route to the Pacific Ocean. This region of Nebraska is heavily wooded, with vibrant green in the spring and summer and spectacular colors in autumn. In addition, some of the earliest Nebraska settlements are found here.

Chimney Rock National Historic Site is located in the North Platte River Valley and is maintained and operated by the Nebraska State Historical Society. This landmark has been revered by people for centuries, especially those who traveled along the Oregon-California Trail. Nearly half a million travelers saw Chimney Rock and all were part of a great passage by Chimney Rock in the years 1812-1866.

Forest Composition and Resources

Before colonization, Nebraska was approximately 98% grasslands and 2% forests. Bluestem and switchgrass dominated the east, blue grama, side oats grama, and a shorter variety of bluestem were common in central Nebraska, and smaller gramas and buffalo grasses prevailed in the west. The Sand Hills grasslands consisted of mostly bluestem and sand dropseed. To a large extent, agriculture and grazing have changed grassland composition. Exotics, such as thistle, cactus, yucca, and brome grass can be found where grazing has exceeded the growing capacity of the native grasses. Extensive invasions of noxious weeds such as spotted knapweed and leafy spurge are occurring across Nebraska.

Nebraska is not the first state that comes to mind when considering extensive forest resources. However, between 1983 and 1994, the area of forested land increased by 32%, reaching a total of 948,000 acres of forest in the state, representing 2% of Nebraska's total land area. In addition to forested land, the state had 1.25 million acres of land with trees present. Many forest types occur in Nebraska, with the elm-ash-locust as the most extensive type with 203,000 acres. Primarily deciduous trees grow in river valleys and on some of the higher western elevations. The cottonwood, elm, oak, maple, ash, and willow are the most common deciduous species found in Nebraska. Large stands of ponderosa pine grow on rugged and higher lands in the west. The red cedar has spread throughout the state since the late 1800's.

Nebraska has some lumber production, averaging around 50 million board feet per year. In 1994, total land classified as timberland was 898,000 acres with more than 98% of this land occurring naturally. Slightly more than 14,000 acres of timberland occurred on plantations in 1994. The annual increase of timberland between 1983 and 1994 was 2.7%. Nebraska's timberland has a high potential productivity, resulting from excellent soil conditions. Due to climatic and soil limitations in the west, the eastern portion of the state has a greater potential productivity.

Some of the State's most impressive scenery is in the Nebraska National Forest. The section of Nebraska National Forest in Thomas and Blaine counties is the largest hand-planted forest in the country. In addition to timber and recreational uses, forested land offers protection against soil erosion from wind and water. Windbreaks, consisting mainly of conifers, have been planted throughout the state.

SECTION 2: FOREST LEGACY AREA ASSESSMENT METHODOLOGY

In order to assess the need for protection of privately owned forest, and to assess the criteria by which those privately owned forests would be chosen, identification of areas of potential conversion, public participation, and interpretation of the public opinion were needed. The NFS chose to accomplish this in the following three steps:

Step 1: Primary Forest Conversion Map

Western Environment and Ecology, Inc. (Western Environment) produced a map showing forest distribution and population change across Nebraska on a census tract level from 1990 to 2000. The map identified areas showing no growth or declining populations, areas with a population increase of up to 120%, and areas with population increases of 120% to 200%. This map was not intended to show any relationship between population change and forest distribution, merely as a visual tool to help the SFSCC in prioritizing forested areas at risk. (Appendix A).

Step 2: Public Participation

Western Environment and the Legacy Program Manager developed a two page questionnaire to involve natural resource agencies, organizations, and individuals interested in natural resources, requesting their input on the Forest Legacy Program (Appendix B). The questionnaire was designed to reveal the demographics of the responder, including age, income, setting, county of residence, zip code, setting of residence, education level, landownership, and interest in the FLP. Additionally, the respondent was asked to pick his/her five most important criteria for protection of critical private forests from a predetermined list of 20 criteria. Space was also provided to enter any additional comments.

The questionnaires were sent to NFS district foresters, county administrators, conservation/preservation association groups, Natural Resource Conservation Service district supervisors, Nebraska Natural Resource Managers, and other interested parties. The total number of mailings was over 100 with 45 questionnaires answered and returned. Additionally, an interactive questionnaire was posted on the www.nebraskaforestlegacy.org Internet site so any interested party could fill out the questionnaire. The Internet site questionnaire yielded 37 questionnaire responses.

www.nebraskaforestlegacy.org

Western Environment developed and populated the www.nebraskaforestlegacy.org Internet site to be used as an online resource. The site contains a home page describing the program, a program status page describing progress of the Assessment of Need study and updates, a survey page where individuals can express their opinions regarding the Forest Legacy criteria, a links page to other Forest Legacy programs and information, and a page to contact Western Environment or the Legacy Program Manager via e-mail (Appendix C).

Step 3: Statistical Analysis

Following receipt of the questionnaires by mail and the Internet site, the responses were entered into a database and the criteria responses queried. Although the low number of responses does not provide definitive support for the selected criteria, the Legacy Program Manager felt that it did show the responses he would expect from those interested in privately owned Nebraska forests (Appendix D).

Results

The results for each criteria are as follows:

Criteria	% Chosen	Criteria	% Chosen
Wildlife Habitat	73%	Threatened and Endangered Species	23%
Water Quality/Quantity	44%	Timber Products	16%
Growth/Sprawl Control	37%	Historical/Archaeological Sites	12%
Hunting/Fishing	36%	Lifestyle Protection for Land Owner	11%
Unique Ecological Areas	33%	Private Property Rights	11%
Species Diversity	33%	Non-Motorized Recreation	9%
Lakes, Rivers, & Streams	32%	Wildfire Control Issues	9%
Wildlife Viewing	27%	Motorized Recreation	4%
Wetland/Riparian Areas	27%	Non-Timber Forest Products	3%
Scenic Landscape Viewing/Aesthetics	24%	Mineral/Gas/Oil Resources	1%

Based upon the results of the questionnaire, the criteria showing 30% support or greater for protection of privately owned forests are:

Wildlife Habitat Protection

Hunting/Fishing Opportunities

Growth/Sprawl Control

Unique Ecological Areas

Water Quality and Quantity Protection

Flora/Fauna Species Diversity

Lakes, Rivers, & Streams Protection

Following the March 21, 2001, meeting of the State Forest Stewardship Coordinating Committee (SFSCC), it was determined that the chosen criteria be used as protection goals for the Forest Legacy Program. Due to the widespread and sparse nature of forest distribution, it was further decided that all of Nebraska be included in the Forest Legacy Program with four areas constituting the “priority” Forest Legacy Protection Areas- Pine Ridge, Wildcat Hills, Niobrara River Valley, and the Missouri River Bluffs.



SECTION 3: FLA DESCRIPTIONS

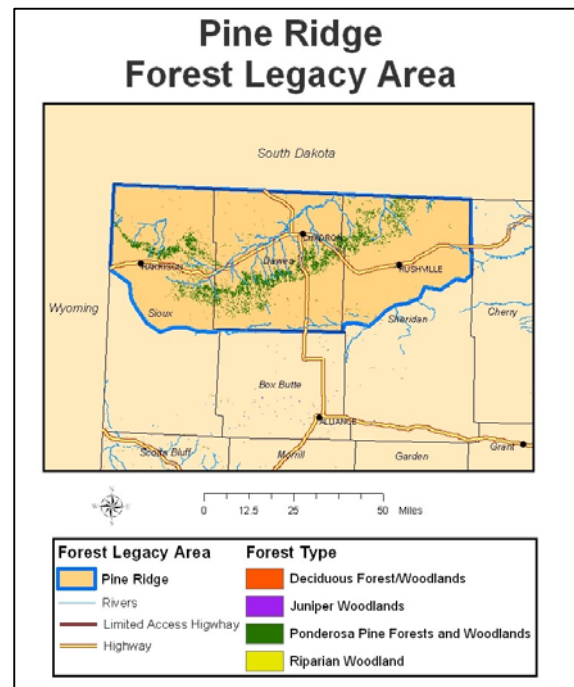
Due to the widespread and sparse nature of forest distribution in Nebraska, coupled with 97% of forested areas in private ownership, all privately owned, forested parcels in Nebraska are eligible for enrollment in the Nebraska Forest Legacy Program. The following FLA's are identified as priority areas for implementation of the Nebraska Forest Legacy Program. (Please note: full page maps for all FLA's are included in Appendix E)

Pine Ridge Forest Legacy Area

Area Coverage Description: This Forest Legacy Area includes all privately owned, forested parcels in Sioux, Dawes, and Sheridan counties from the South Dakota boarder to the Niobrara River.

Forest Legacy Protection Goals for the Pine Ridge Area:

1. Protection of flora/fauna species diversity.
2. Protection of lakes, rivers, streams, and other significant riparian areas.
3. Protection of significant wildlife habitat.
4. Protection of forested parcels in danger of conversion to commercial and/or residential development or being cleared for agriculture.
5. Protection of unique ecological areas.
6. Protection and expansion of hunting and fishing based recreation opportunities.
7. Protection of water resources.



This Forest Legacy Area contains 294,400 acres of woodlands that is 39% commercial forest, 8% non-commercial forest, and 53% non-forest areas with trees. The 2000 census population for the three counties is 16,555 people accounting for 1% of the total population of Nebraska.

Containing primarily ponderosa pines, spring-fed streams, and rugged white cliffs, Pine Ridge extends across 100 miles of northwest Nebraska. This northern boundary of the High

Plains rises 1,000 feet above the White River Valley. Pine Ridge includes Fort Robinson and Chadron State Parks, and Peterson, Ponderosa, and Metcalf Wildlife Management Areas. Pine Ridge Ranger Division encompasses 52,000 acres of naturally occurring pines and mixed-grass prairie.

This arid forested area exhibits northern Great Plains ecosystems, geological formations, and multi-species conifer forest. Within Pine Ridge National Recreation Area, 80 miles of marked trails can be found for hiking, mountain biking, and horseback riding. Camping is also popular on the 6,600 acres of primitive/semi-primitive recreation land that sits within a natural environment.

The Pine Ridge FLA contains three areas of federal land including the Agate Fossil Beds NM, part of the Nebraska National Forest, and the Oglala National Grasslands. State lands within the FLA include Fort Robinson State Park (SP), Chadron SP, Box Butte Reservoir State Recreation Area (SRA), and Walgren Lake SRA.

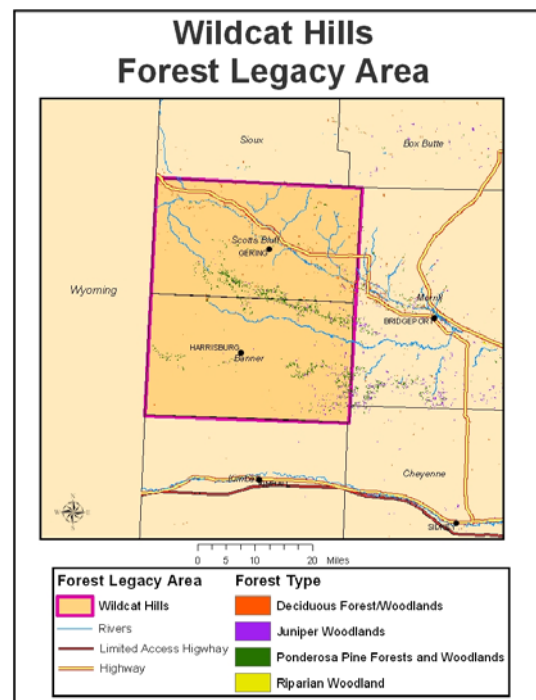
Wildcat Hills Forest Legacy Area

Area Coverage Description: This Forest Legacy Area includes all privately owned, forested parcels in Scottsbluff and Banner counties.

Forest Legacy Protection Goals for the Wildcat Hills Area:

- 1. Protection of flora/fauna species diversity.**
- 2. Protection of lakes, rivers, streams, and other significant riparian areas.**
- 3. Protection of significant wildlife habitat.**
- 4. Protection of forested parcels in danger of conversion to commercial and/or residential development or being cleared for agriculture.**
- 5. Protection of unique ecological areas.**
- 6. Protection and expansion of hunting and fishing based recreation opportunities.**
- 7. Protection of water resources.**

This Forest Legacy Area contains 47,400 acres of forested area consisting of 17% commercial forest, 15% non-commercial forest, and 68% non-forest areas with trees. The 2000



census population for the two counties is 36,823 people accounting for 2% of the total population of Nebraska.

Located 10 miles south of Gering, Nebraska, Wildcat Hills can be found sporting rugged rock buttes and pine-covered canyons. This area is overlooking the North Platte River Valley and sits southeast of the historic Scottsbluff National Monument. Wildcat Hills encompasses 935 acres with 705 acres for recreational use. Mainly a day-use area, hiking, picnicking, and cross-country skiing are popular.

This FLA contains the Scotts Bluff National Monument and the Wildcat Hills and Lake Minatare State Recreation Areas

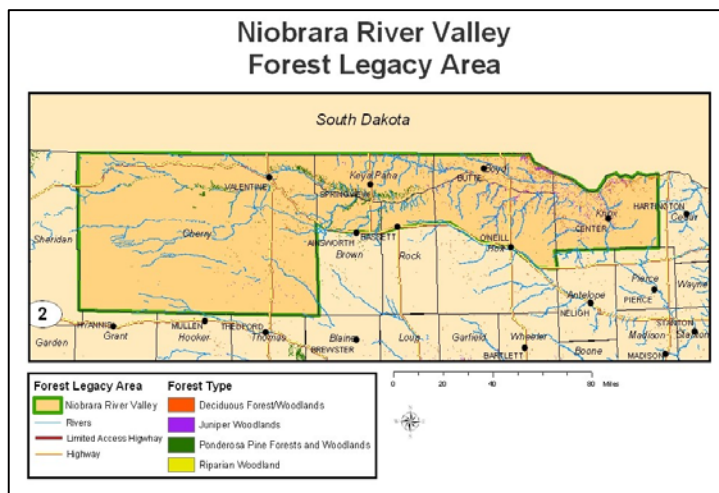
Niobrara River Valley Forest Legacy Area

Area Coverage Description: This Forest Legacy Area includes all privately owned, forested parcels in Keya Paha Brown, Rock, Holt, and Boyd counties north of Highway 20 and all of Cherry and Knox counties.

Forest Legacy Protection Goals for the Niobrara River Valley Area:

- 1. Protection of flora/fauna species diversity.**
- 2. Protection of lakes, rivers, streams, and other significant riparian areas.**
- 3. Protection of significant wildlife habitat.**
- 4. Protection of forested parcels in danger of conversion to commercial and/or residential development or being cleared for agriculture.**
- 5. Protection of unique ecological areas.**
- 6. Protection and expansion of hunting and fishing based recreation opportunities.**
- 7. Protection of water resources.**

This Forest Legacy Area contains 274,300 acres of forested areas consisting of 25% commercial forest, 9% non-commercial forest, and 66% non-forest areas with trees. The 2000 census population for the seven counties is 35,775 people accounting for 2% of the total population of Nebraska.

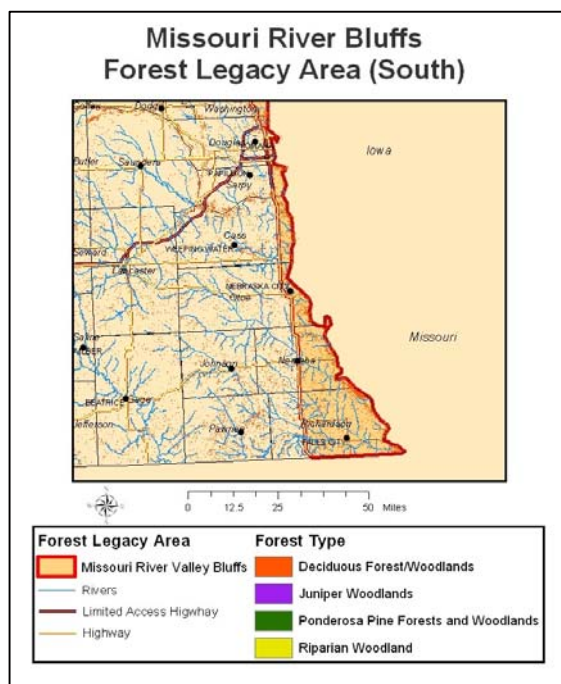


The Niobrara River Valley, or “the biological crossroads of the Great Plains”, is located in north central Nebraska. Six ecosystems come together in the valley - Rocky Mountain pine forest, northern (boreal) forest, eastern deciduous forest, tall-grass prairie, mixed-grass prairie, and sandhills prairie.

The Niobrara River Valley FLA has three federal land areas including the Samuel R. McKelvie National Forest and the Fort Niobrara and Valentine National Wildlife Refuges. The FLA contains numerous state lands including Cottonwood Lake, Merritt Reservoir, Long Lake, Keller Park, Long Pine, Atkinson Lake, and Lewis and Clark State Recreation Areas. Smith Falls and Niobrara State Parks along with the Bowring Ranch State Historic Park are also within the FLA.

Missouri River Bluffs Forest Legacy Area

Area Coverage Description: This Forest Legacy Area includes the privately owned, forested parcels north of Nebraska Highway 12 in Cedar, Dixon, and Dakota counties and east of U.S. Highway 75 in Dakota, Thurston, Burt, Washington, Douglas, Sarpy, Cass, Otoe, Nemaha, and Richardson counties.



Forest Legacy Protection Goals for the Missouri River Bluffs Area:

- 1. Protection of flora/fauna species diversity.**
- 2. Protection of lakes, rivers, streams, and other significant riparian areas.**
- 3. Protection of significant wildlife habitat.**
- 4. Protection of forested parcels in danger of conversion to commercial and/or residential development or being cleared for agriculture.**
- 5. Protection of unique ecological areas.**
- 6. Protection and expansion of hunting and fishing based recreation opportunities.**
- 7. Protection of water resources.**

This Forest Legacy Area contains 270,400 acres of forested lands consisting of 37% commercial forest, 11% non-commercial forest, and 52% non-forested areas with trees. The 2000 census population for the 12 counties is 700,182 people accounting for 42% of the total population of Nebraska.

Situated along the western bank of the Missouri River, this FLA contains a diverse ecology ranging from short and tall grass prairies along with oaks, walnut, hickory, as well as eastern red cedar.

The Missouri River Bluffs FLA contains numerous state lands including Ponca, Fort Atkinson, and Indian Cave State Parks along with Pelican Point, Summit Lake, Riverview, Arbor Lodge, Brownville, and Verdon State Recreation Areas.

SECTION 4: PROJECT SELECTION RANKING PROCEDURE

Project proposals will be identified through request processes managed by the Legacy Program Manager. A Subcommittee of the SFSCC will review submitted projects, assign values to the project attributes according to the program ranking system (below), and rank the projects according to the total value derived from the ranking system. These ranked projects will then be submitted to the Nebraska State Forester for additional review and consideration. Following the State Forester's final ranking approval, the proposed projects will be submitted to the national program manager for final consideration.

The following is the program evaluation and ranking system as devised by the Nebraska State Forest Stewardship Coordinating Committee:

NEBRASKA FOREST LEGACY RANKING SYSTEM

	<u>Max Points</u>
● Parcel located in an identified "Priority Legacy Area"	50
● Conversion Risk (to non-forest urban or agricultural uses)	50
● Public Resource Benefits	
- Wildlife Habitat (important species or high diversity)	25
- Water (watershed protection/water quality)	25
- Forest Products (timber/wood products)	25
- Aesthetics (scenic or unique landscapes)	25
- Recreation (public non-motorized opportunities)	25
● Cultural Resources (historic/archeologic values)	25
● Unique Ecological Area	25
● T & E species present	25
● Size and Continuity (including % forested)	25
● Forest Condition (current condition and potential for improvement)	25
● Economics (landowner or other contribution as a % of total cost)	50
● Other Considerations	
- adjacent to other reserved forest land, e.g. parks, national forests, etc.	10
- other community/agency/neighbor support	10
- parcel contains riparian forest land	10
- evidence of active forest management, e.g. planting, improvement	10
- forest type consistent with natural site	<u>10</u>
	<hr/> 450

SECTION 5: FOREST LAND CONSERVATION AND LAND TRUSTS

Existing Land Trust Programs

National, Regional, and Local land conservation organizations play a vital role in the protection of private lands in Nebraska. These organizations will be important partners in the success of the Nebraska Forest Legacy Program. Nebraska currently has a wide and extensive network of land trust and conservation partnerships.

National, Statewide, and Regional Land Trusts Operating in Nebraska.

American Farmland Trust

The Conservation Fund

The Nature Conservancy

Fontenelle Forest Association

Northern Plains Land Trust

Platte River Whooping Crane Maintenance Trust

Prairie Plains Resource Institute

Local Land Trust Agencies

The 23 Natural Resource Districts in Nebraska Including:

Central Platte NRD

Papio Missouri River NRD

Lewis and Clark NRD

Nemaha NRD

Little Blue NRD

North Platte NRD South Platte NRD

Lower Big Blue NRD

Tri-Basin NRD

Lower Elkhorn NRD

Twin Platte NRD

Lower Loup NRD

Upper Big Blue NRD

Lower Niobrara NRD

Upper Elkhorn NRD

Lower Platte North NRD

Upper Loup NRD

Lower Platte South NRD

Upper Niobrara-White NRD

Lower Republican NRD

Upper Republican NRD

Middle Niobrara NRD

Middle Republican NRD

Literature Cited

Lawson, M. P., Dewey, K. F., and Neild, R. E., eds., 1977, Climatic Atlas of Nebraska, University of Nebraska Press, Lincoln.

Nebraska Agricultural Statistics Service, Nebraska Agricultural Statistics. Internet Release, August 2001. Retrieved from <http://www.nol.org>

Nebraska Agricultural Statistics Service, Nebraska Agri-Facts, Internet Release, April 2001. Retrieved from <http://www.usda.gov/nass/>

Nebraska Library Commission, Electronics Library. February 2002, Retrieved from <http://www.nlc.state.ne.us/nsf/nebraskaresources.html>

Neild, R. E., 1977, Agroclimatic resources, in Williams, J. H., and Murfield, D., eds., Agricultural Atlas of Nebraska, University of Nebraska Press, Lincoln.

Schmidt, Thomas L. and Wardle, Tom D., The Forest Resources of Nebraska, 1998.

USDOC, Bureau of the Census, Statistical Abstract of the United States: 2000, 2000 and USDA, Natural Resource and Conservation Service, Summary Report, 1997 National Resources Inventory, December 1999.

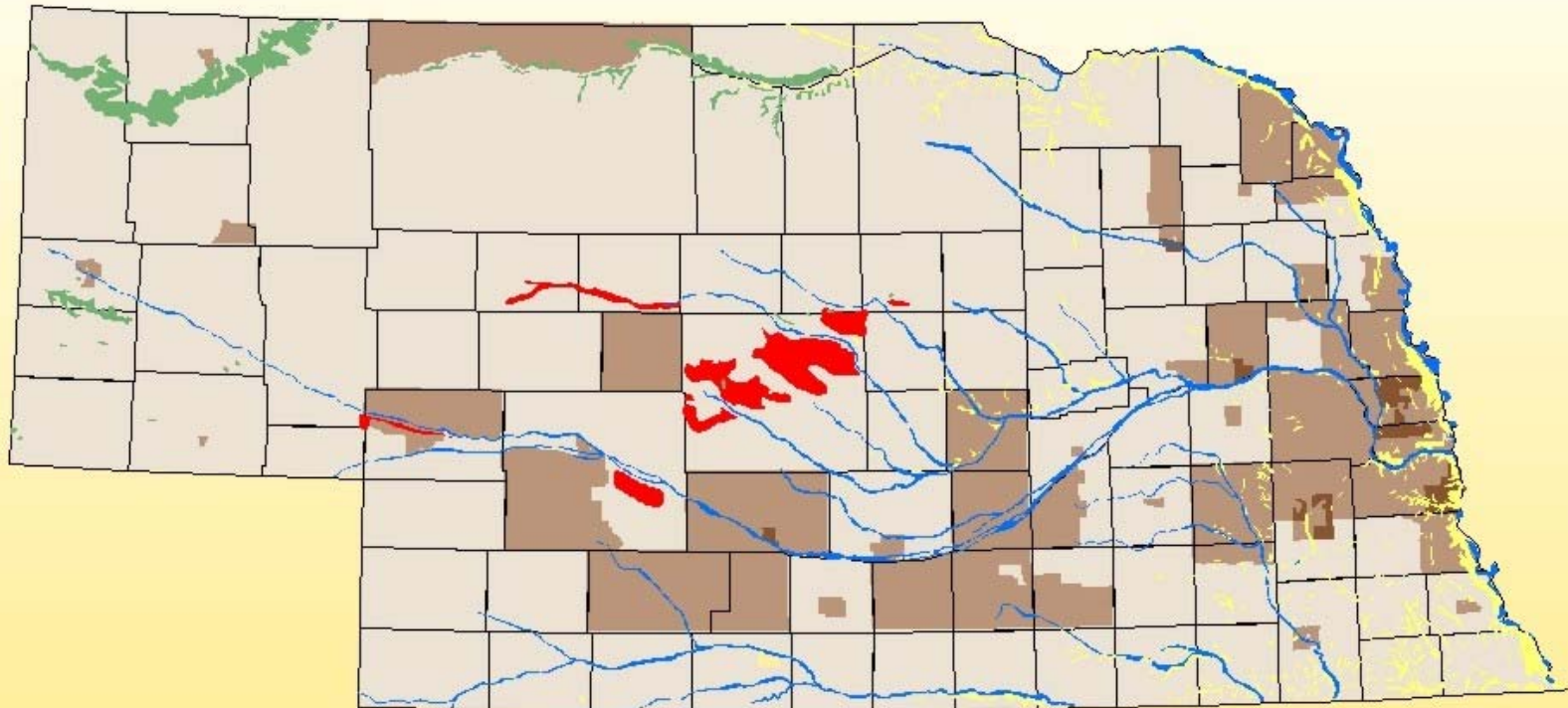
U.S. Department of Agriculture, National Agricultural Statistics Service, Census of Agriculture, 1999.

APPENDICES

APPENDIX A
Primary Forest Conversion Map

Forest Distribution and Population Change, 1990 to 2000

For the Nebraska Forest Legacy Assessment of Need



Forest Type

- Red Cedar Forests
- Upland Deciduous Forest
- Riparian Deciduous Forest
- Ponderosa Pine Forest

1990 to 2000 Population Change

- Declining to Same Population
- Same Population to 120% Growth
- 120% to 200% Growth

Forest Cover Data: Vegetate.e00. Available from Conservation & Survey Division, University of Nebraska-Lincoln. <http://nesen.unl.edu/csd/index.html>
 Nebraska Counties Data: counties.shp. Available from ESRI, ESRI Data and Maps, Canada, Mexico, United States, and the World data CD, 2001.
 Nebraska Census Tract Data: netrct.shp. Available from ESRI, ESRI Data and Maps, Western United States data CD, 2001.

APPENDIX B
Nebraska Private Forest Land Assessment Survey



NEBRASKA PRIVATE FOREST LAND ASSESSMENT SURVEY

The Nebraska Forest Service is assessing the status of Nebraska's private forest lands to determine the risks of conversion to non-forest uses. This information will enable us to discover what technical and financial resources are needed to support private landowners who wish to ensure the health, productivity, and ecological value of their forest land.

This process will gather and evaluate a variety of geographic and environmental information. In addition, a critical component is to measure the interests and concerns of stakeholders who may be involved in the future of private forest land. Your answers to this questionnaire will provide valuable information. Please take a few moments to complete the survey and return it to the mailing address at the bottom of the second page by February 20, 2002. You may also complete this survey on-line at www.nebraskaforestlegacy.org.

Please tell us about yourself:

Note: All information will be used strictly for the purposes of the private forest land assessment. None of the information will be used for any other purpose or given to any other organization or individual.

Residence Zip Code: _____ County of Residence: _____

What area do you live in? (please circle one): Urban / Suburban / Rural

<u>Age Group: (circle one)</u>	<u>Highest Education Level</u>	<u>Annual Household Income</u>
18 & Under	High School Not Completed	Less than \$20,000
19 to 25	High School/GED	\$20,001 to \$40,000
26 to 35	Some College	\$40,001 to \$60,000
36 to 45	Associates / Technical Degree	\$60,001 to \$80,000
46 to 55	4 Year College Degree	\$80,001 to \$100,000
56 to 65	Graduate Degree	Greater than \$100,000

65 & Over

Do you live in Nebraska? Y / N

If so, for how many years?

Less than 1

1 to 5

6 to 10

Greater than 11

Do you or someone in your household own 10 or more acres of Nebraska forest land? Y / N

I am a (please choose all that apply):

- ☐ **Federal / State government natural resource-related agency employee**
- ☐ **County / Local government natural resource-related agency employee**
- ☐ **Other federal/state/county/local (please circle one) government employee**
- ☐ **Private land owner**
- ☐ **Land-use planner**
- ☐ **Forestry / Timber industry employee**
- ☐ **Conservation / Preservation association member**
- ☐ **Elected federal/state/county/local (please circle one) public official**
- ☐ **Private natural resource professional**
- ☐ **Other: _____**

What are your main concerns for forest land protection in Nebraska

(Please choose only five):

- | | |
|--|---|
| <input type="checkbox"/> Wetlands/Riparian areas | <input type="checkbox"/> Wildlife Viewing |
| <input type="checkbox"/> Water Quality/Quantity | <input type="checkbox"/> Scenic Landscape |
| <input type="checkbox"/> Hunting & Fishing | <input type="checkbox"/> Viewing/Aesthetics |
| <input type="checkbox"/> Lakes, Rivers, and Streams | <input type="checkbox"/> Historical / Archaeological Sites |
| <input type="checkbox"/> Motorized Recreation | <input type="checkbox"/> Wildlife Habitat |
| <input type="checkbox"/> Non-Motorized Recreation | <input type="checkbox"/> Threatened and Endangered Species |

- _____ **Unique Ecological Areas**
- _____ **Mineral / Gas / Oil Resources**
- _____ **Timber Products**
- _____ **Non-Timber Forest Products**
- _____ **Species Diversity**
- _____ **Wildfire Control Issues**
- _____ **Lifestyle Protection for Land Owner**
- _____ **Growth / Sprawl Control**
- _____ **Private Property Rights**
- _____ **Other:** _____

Please provide any other comments that you believe would be helpful to the Nebraska Forest Service as it conducts this assessment. Attach additional sheets if necessary. If you would like to be contacted by the project manager, please provide your name, address, phone number and email address.

Thank you very much for taking the time to provide your valuable input.

Please mail to: **Western Environment and Ecology, Inc.**
 Attn: Nebraska Forest Legacy
 2217 West Powers Avenue
 Littleton, Colorado 80120

APPENDIX C

www.nebraskaforestlegacy.org

NEBRASKA FOREST LEGACY

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► [Project Applications Coming Soon](#)

Development of the Nebraska's forested areas poses an increasing threat to maintaining the integrity of our state's valuable forest lands. Intact forest lands supply timber products, wildlife habitat, soil and watershed protection, aesthetics, and recreational opportunities. However, as these areas are fragmented and disappear, so do the benefits they provide. While local governments often guide development away from the most sensitive areas through traditional land use controls (like zoning and performance standards), sometimes these measures are not sufficient to fully protect the forested component of our natural resource base.



The Forest Legacy Program (FLP), a federal-funded and state-administered program, supports efforts to protect private forest lands that are environmentally, economically and socially critical. Designed to encourage the protection of privately owned forest lands, FLP is an entirely voluntary program. To maximize the public benefits it achieves, the program focuses on the acquisition of partial interests in privately owned forest lands (conservation easements). FLP helps

states develop and carry out their forest conservation plans. It encourages and supports acquisition of conservation easements, legally binding agreements transferring a negotiated set of property rights from one party to another, without removing the property from private ownership. Most FLP conservation easements restrict development, require sustainable forestry practices, and protect other values.

The Nebraska Forest Service is in the progress of developing the Forest Legacy Program for Nebraska. Please visit the [Program Status](#) page for a review of current activities.



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Program Status

The Nebraska Forest Service was designated by Governor Mike Johanns as the lead agency for the Forest Legacy Program in Nebraska. The Nebraska Forest Service has since contracted with Western Environment and Ecology, Inc., a Littleton, Colorado environmental consulting firm, to conduct a statewide Assessment of Need (AON). Western Environment and Ecology, Inc. has successfully prepared an AON for the State of Colorado (www.coloradoforestlegacy.org).



The AON for the State of Nebraska will identify segments of the state where private forestland is at greatest risk of conversion to non-forest uses. In addition, it will secure Nebraska's eligibility for federal matching funds through the national Forest Legacy Program. This program is federally funded and administered by the State. It provides financial support for conservation easements and other voluntary land protection activities.

The AON process will gather and evaluate a variety of geographic and environmental information. In addition, a critical component is to measure the interests and concerns of stakeholders who may be involved in the future of private forestland. Such information is being gathered through interviews and a formal survey. If you have not already done so, please click on the [survey](#) link and take a few moments to complete the survey by February 25, 2002. Your answers to this questionnaire will provide valuable information.

The AON should be complete by May 15, 2002. The Nebraska Forest Service program manager will then work with the State Forest Stewardship Coordinating Committee to design Nebraska Forest Legacy Program.



Please check back on this page for updates on the progress.

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► [Project Applications Coming Soon](#)

Contact Us

You may contact either the Forest Legacy Program manager or the Assessment of Need contractor at the following:



Nebraska Forest Legacy Program Manager

Gary Hergenrader
Nebraska Forest Service
Nebraska State University
Lincoln, NE 68583-0815

Phone: (402)-472-2944

Fax: (402)-472-2964

info@nebraskaforestlegacy.org

Western Environment and Ecology, Inc.

Eric Sandifer
2217 West Powers Avenue
Littleton, CO 80120
(303) 730-3452
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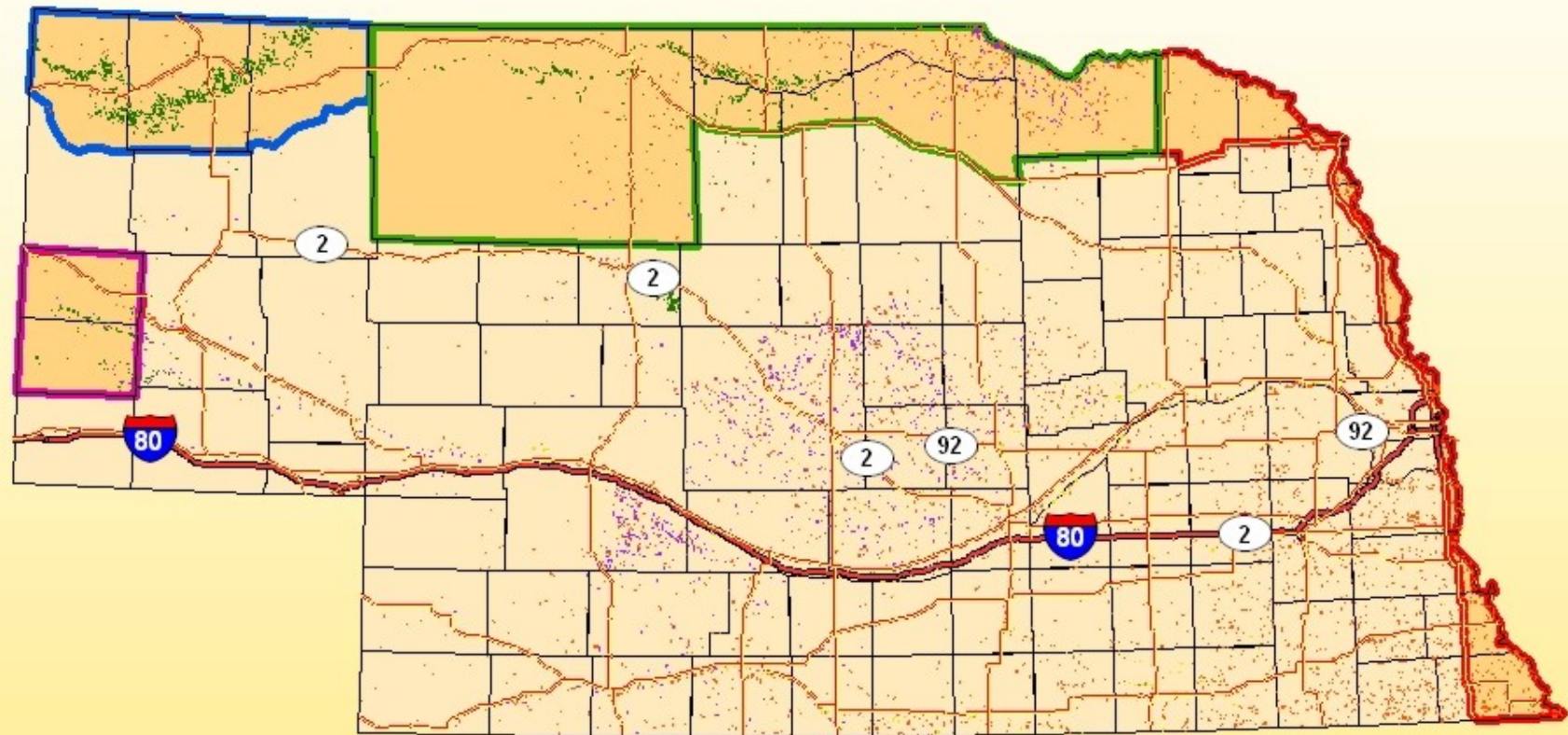
Email: info@nebraskaforestlegacy.org

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APPENDIX D
Survey Response Analysis

APPENDIX E
Nebraska Forest Legacy Program
Proposed Forest Legacy Area Maps

Nebraska Forest Legacy Areas



Forest Legacy Area

	Missouri River Valley Bluffs
	Niobrara River Valley
	Pine Ridge
	Wildcat Hills

Forest Type

	Deciduous Forest/Woodlands
	Juniper Woodlands
	Ponderosa Pine Forests and Woodlands
	Riparian Woodland

0 37.5 75 150 Miles



Wildcat Hills Forest Legacy Area



0 5 10 20 Miles

Forest Legacy Area



Wildcat Hills



Rivers



Limited Access Highway



Highway

Forest Type



Deciduous Forest/Woodlands



Juniper Woodlands

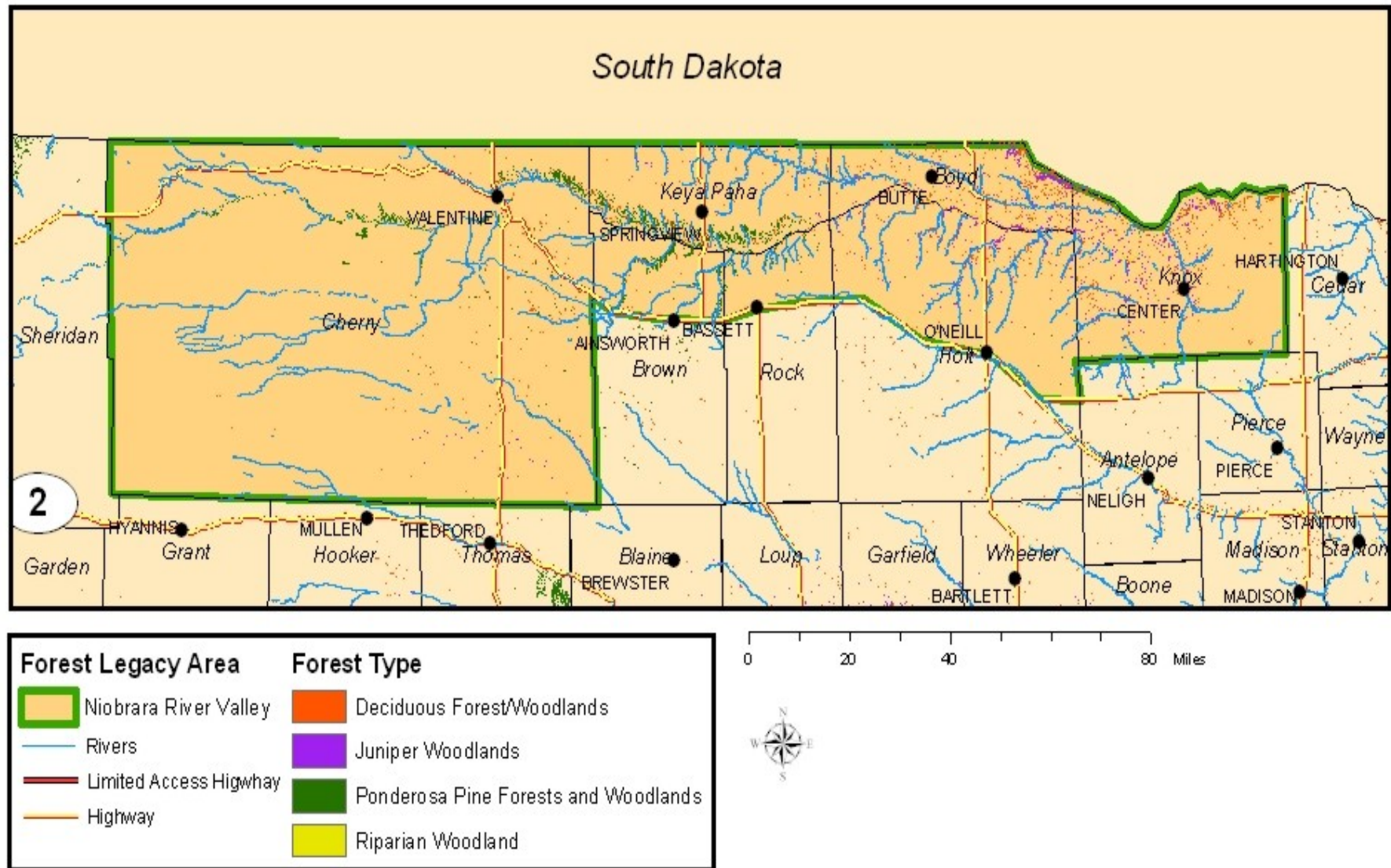


Ponderosa Pine Forests and Woodlands

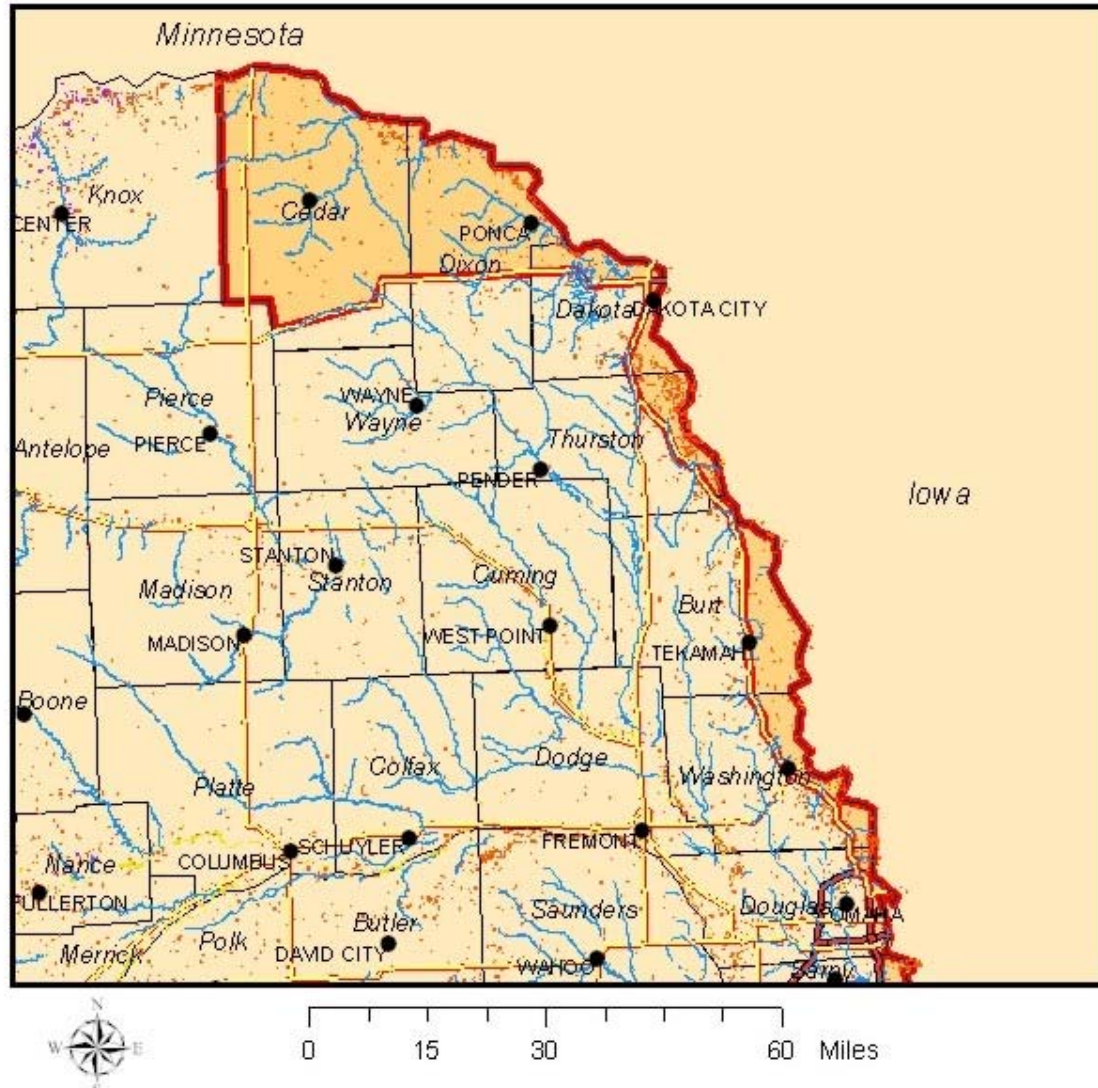


Riparian Woodland

Niobrara River Valley Forest Legacy Area



Missouri River Bluffs Forest Legacy Area (North)



Forest Legacy Area

- Missouri River Valley Bluffs
- Rivers
- Limited Access Highway
- Highway

Forest Type

- Deciduous Forest/Woodlands
- Juniper Woodlands
- Ponderosa Pine Forests and Woodlands
- Riparian Woodland

Missouri River Bluffs Forest Legacy Area (South)



0 12.5 25 50 Miles

Forest Legacy Area

- Missouri River Valley Bluffs
- Rivers
- Limited Access Highway
- Highway

Forest Type

- Deciduous Forest/Woodlands
- Juniper Woodlands
- Ponderosa Pine Forests and Woodlands
- Riparian Woodland